



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,092	12/11/2001	Laurence W. Davies	26998-241836	7674

25764 7590 11/06/2003

FAEGRE & BENSON LLP  
2200 WELLS FARGO CENTER  
90 SOUTH 7TH STREET  
MINNEAPOLIS, MN 55402

EXAMINER

YAO, SAMCHUAN CUA

ART UNIT	PAPER NUMBER
----------	--------------

1733

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/015,092

Applicant(s)

DAVIES ET AL.

Examiner

Sam Chuan C. Yao

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) 55-65 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-38 and 50-54 is/are rejected.
- 7) ☒ Claim(s) 39-49 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2-5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group I (claims 1-54 and 64) in Paper No. 7 is acknowledged.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11, 19, 21-29 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 is indefinite, because it is unclear what is intended by "... *first polymeric fibers comprising a first glass transition temperature ... a first comprises the first glass transition, "*. How can a fiber comprises a glass transition temperature? It is suggested to replace this claim with --... first polymeric fibers comprising a plurality of bi-component fibers having a first component and a second component, wherein the first component has a first glass transition temperature and the second component has a second glass transition temperature, the second glass transition temperature is less than the first glass transition temperature--.

Claim 19 is indefinite, because it is unclear whether this claim requires a binder comprising a blend of "*one or more specialized latex binder ..., a polyvinyl acetate emulsion, and a crosslinking polyvinyl acetate emulsion*".

For the purpose of examining this limitation, this limitation is assumed to read on using only one of the above selections of latex binder.

Claims 21-29 are indefinite, because the phrase "*the permeably reinforcing sheet*" does not have a positive antecedent basis. For the purpose of examining these claims, the recited permeably reinforcing sheet is assumed to be a "*permeable transport web*". Moreover, claims 28-29 and 33 are indefinite, because the preamble of these claims are inconsistent with the body of recited claims. It is suggested to replace "*The reinforcement structure*" with --The method ...--.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-15, 18-31, 34-36, 52-53 and 64 are rejected under 35

U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rau et al (US 4,752,513).

With respect to claims 1-3, 14, 20, 52-53 and 64, Rau discloses a process of making a pultruded composite, the process comprises:

a) orienting an array of continuous strands along an axial direction of a pultrusion die;

b) providing a pair of reinforcing structures, each comprising a fiber (taken to be staple fibers) mat and a plurality of overlapping continuous strand layers, each strand layer being deposited transversely from the axial direction, wherein the mat and the strand layers are attached together by a needling operation, thereby forming perforations to the mat and entangling fibers in the mat into the stand layers (i.e. a permeable transport web);

c) impregnating the oriented continuous strands and the reinforcing structures by immersing each of them into a resin bath;

d) folding each of the reinforcing structures to generally conform with a profile of the pultrusion die;

e) feeding the oriented continuous strand into the pultrusion die;

f) disposing and combining the oriented continuous strands between the folded pair of reinforcing structures in the pultrusion die;

g) curing the resin the pultrusion die to form a pultruded composite; and,

h) pulling the pultruded composite from the pultrusion die (col. 1 lines 32-37; col. 3 lines 4-68; col. 5 line 44 to col. 6 line 63). Although not explicitly disclosed, in view of the similarity of the production processes (i.e. all layers are immersed in a resin, before being combined in a pultrusion die) between the process taught by Rau et al and the present invention, the resin must inherently substantially surround the oriented continuous strands and the pair of reinforcing structures. Moreover, although not

Art Unit: 1733

expressly disclosed, since the transversely deposited strands comprises several layers as compared to a single fiber mat, the transversely deposited strand layers must inherently comprise *"at least 40% [50%] of a volume of materials comprising the reinforcing structure"* (terms inserted).

Note further: Where ... the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. **Whether the rejection is based on "inherency" under 35 USC § 102, on prima facie obviousness" under 35 USC § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products."** In re Best, 562 F2d 1252, 1255, 195 USPQ 430, 433-4 (CCPA 1977).

In any event, absent any showing of unexpected benefit, it is taken to be well within the purview in the art to determine a suitable relative volume between a fiber mat and transversely deposited strand layers in forming a reinforcing structure of Rau et al.

With respect to claims 4-5, since Rau et al is not restrictive to a particular fiber dimension in forming a fiber mat as evidence from the following passage: *"In producing mats of glass fibers, the fiber size can range widely ..."* (col. 3 lines 27-36); and since the recited fiber dimension is conventional in the art of making a fiber mat; these claims would have been obvious in the art.

With respect to claims 6-7, since a fiber mat having the recited weight basis is well known in the art, these claims would have been obvious in the art.

Art Unit: 1733

With respect to claims 8-12 and 15, see column 3 lines 50-52. It is a common practice in the art to use bicomponent fibers, each having reinforcing/loading core and thermo-binding shell such that, the difference in glass transition or softening temperature is significantly different so that, the reinforcing/loading core are not adversely affected during a thermo-activation of the thermo-binding shell. Moreover, polymeric fibers having the recited glass transition temperatures are well known in the art.

Furthermore, as the thermo-binding fibers are melted, the fiber mat must inherently be thermally bonded to the transversely deposited strands. For these reasons, these claims would have been obvious in the art.

With respect to claim 13, although not explicitly disclosed, the reinforcing structure of Rau et al has substantially in-plane mechanical and direction stability, because a reinforcing fiber mat is not only needed to a transversely overlapping layers of continuous strand, but they are also stitched together.

With respect to claim 18-19, see column 4 lines 11-27. The recited latex binders in claim 19 are taken to be conventional in the art.

With respect to claims 21-29, the recited permeability (depends significantly on a number of needles per unit area), stiffness, thickness, and tensile strength are all taken to be well within the purview of choice in the art. One in the art would have determined, by routine experimentation, a workable fiber mat characteristic for its intended application.

Art Unit: 1733

With respect to claims 30-31, see column 3 lines 1-8 and column 5 lines 44-53.

With respect to claims 34-36, see column 5 lines 54-67, especially US patent 4,340,406 cited by Rau et al.

6. Claims 16-17 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rau et al (US 4,752,513) as applied to claim 1 above, and further in view of Smith (US 3,761,345).

It would have been obvious in the art to replace a reinforcing structure taught by Rau et al with a reinforcing structure taught by Smith, because:

a) Rau et al discloses providing a reinforcing structure having characteristics that would form a pultruded article which has “a *substantially uniform reinforcement throughout and tensile properties in all direction that are adequate for the intended use*” (col. 1 lines 44-65); and, b) Smith teaches forming “an *improved reinforcement structure*” having a similar configuration as Rau (i.e. fiber mat and transversely deposited layers of strands are needled together), accordingly, the reinforcing structure has “*improved multidirectional strength characteristics*” and “*improved conformability and better resin absorption characteristics*”, so that a resultant reinforced article has “*improved strength*” (col. 2 lines 3-15). It directly follows that, in view that, the reinforcement structure of Smith comprises a fiber mat and overlapping oriented layers of strands which are stitched together using unstretched polyester filaments after

Art Unit: 1733

being needed (col. 6 lines 25-42; col. 10 lines 9-60; figure 15), claims 16-17 would have been obvious in the art.

With respect to claim 38, see figures 1 and 10-11 of the Smith patent, for example.

7. Claims 32-33, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rau et al (US 4,752,513) as applied to claim 1 above, and further in view of Dana et al (US 5,908,689).

With respect to claims 32-33, the recited organosilane agent is a conventional coupling agent in the art. It is a common practice to apply an organosilane coupling agent to a fiberglass reinforcing structure as exemplified in the teachings of Dana et al (col. 6 lines 41-55).

With respect to claim 37, since Dana et al teaches forming a needled reinforcing structure comprising an alternating layers of fiber mat ply and a plurality of overlapping continuous strand plies which are deposited transversely from the axial direction, wherein the reinforcing structure can be used in a pultrusion process, this claim would have been obvious in the art.

8. Claims 50-51 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rau et al (US 4,752,513) as applied to claim 1 above, and further in view of Beer et al (US 5,910,458).

Since it is old in the art to pultrude a reinforcing composite which comprises alternating layers of needled reinforcing structure and a

longitudinal rovings as taught example by Beer et al (col. 19 lines 12-17; figures 1, 3 and 8), these claims would have been obvious in the art.

***Allowable Subject Matter***

9. Claims 39-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Although Smith (US 3,761,345) teaches a reinforcing structure comprising 1<sup>st</sup> reinforcing fibers oriented at a 1<sup>st</sup> acute angle relative to a longitudinal axis, 2<sup>nd</sup> reinforcing fibers oriented at a 2<sup>nd</sup> acute angle relative which is negative to the 1<sup>st</sup> acute angle, Smith fails to teach a reinforcing structure comprising a) 1<sup>st</sup> reinforcing fibers oriented in a direction transverse to a longitudinal axis comprising at least 40% of a volume of the reinforcing structure, wherein the reinforcing structure further comprises 2<sup>nd</sup> reinforcing fibers oriented at a 2<sup>nd</sup> acute angle relative to a longitudinal axis, 3<sup>rd</sup> reinforcing fibers oriented at a 3<sup>rd</sup> acute angle relative which is negative to the 2<sup>nd</sup> acute angle.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The references cited by Applicant on the 1449's have been made of record.

While the statements filed clearly do not comply with the guidelines set forth in MPEP 2004 regarding both the number of references cited and elimination of

Art Unit: 1733

clearly irrelecant art and marginally pertinent cumulative information, compliance with these guidelines is not mandatory. Furthermore, 37 CFR 1.97 and 1.98 do not require that the information be material, rather they allow for submission of information regardless of its pertinence to the claimed invention. Also, there is no requirement to explain the materiality of submitted references, however, the cloaking of a clearly relevant reference by inclusion in a long list of citations may not comply with Applicant's duty of disclosure, see *Penn Yan Boats, Inc. v. Sea Lark Boats Inc.*, 359 F. Supp. 948, aff'd 479 F. 2d. 1338.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (703) 308-4788. The examiner can normally be reached on Monday-Friday with second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff H Aftergut can be reached on (703) 308-2069. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2058.



Sam Chuan C. Yao  
Primary Examiner  
Art Unit 1733

Scy  
11-02-03